HIGHLY SENSITIVE GENE DETECTION AND LOCALIZATION USING *IN SITU* BRANCHED-DNA HYBRIDIZATION

ABSTRACT OF THE DISCLOSURE

Methods are provided for highly sensitive and rapid *in situ* detection of a nucleic acid analyte of a known sequence. The method employs oligonucleotide probes in a series of optimized steps to amplify a signal and decrease background. Sensitivity is enhanced such that the method can detect as few as 1-2 copies of nucleic acid analyte per sample, the sample containing a cell, tissue or similar biological material. Methods of detecting and identifying the position of the nucleic acid analyte in a cell are also provided.